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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,045	06/24/2003	Alvin Jose Joseph	BUR920030004US1	1044
21918	7590	08/04/2005	EXAMINER	
DOWNS RACHLIN MARTIN PLLC			NGUYEN, TUAN H	
199 MAIN STREET			ART UNIT	
P O BOX 190			PAPER NUMBER	
BURLINGTON, VT 05402-0190			2813	

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/604,045

Applicant(s)

JOSEPH ET AL.

Examiner

Tuan H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 1 is objected to because of the following informalities:

In claim 1,

-step (c), line 2, "said doped epitaxial layer" lacks antecedent basis;

-step (e), line 1, "based" should be changed to – base --.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Blouse et al. (US Pat. No. 5,008,207).

See Blouse et al., figs. 1A-1M and related text on col. 2-6 which discloses the claimed bipolar device including a substrate 11 having a collector 12, 14 (fig. 1); an doped epitaxial layer 32; undoped epitaxial layer 34 formed above the collector layer 14; a doped epitaxial extrinsic base layer 36 confronting the undoped epitaxial layer 34 and having an aperture formed therein (figs. 1B-1F); the doped epitaxial extrinsic base layer 36 including a remnant oxidated ring 48 immediately surrounding and perfectly symmetrical about the aperture (figs. 1G-1K); an emitter 56 having a lower portion

located in the aperture and confronting the undoped epitaxial layer 34 (fig. 1L); since the doped extrinsic base layer 36 is a conductor; therefore, a conductor ring is considered as a thin top portion of the doped epitaxial extrinsic base layer 36.

With respect to claim 3, fig. 4M shows the emitter 56 includes an upper portion distal from the substrate and extending over a portion of the doped extrinsic base layer 36, the conductor ring which is a top portion of the doped extrinsic base layer 36 extending radially out from underneath the upper portion.

Claims 10, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ryum et al. (Cited US pat. No. 6,362,066).

See Ryum et al., fig. 6 and related text on col. 9-11 which discloses the claimed bipolar transistor including an undoped epitaxial layer 120 formed above the substrate 101 having collector 111; a doped epitaxial extrinsic base layer 123 confronting the undoped epitaxial layer 120 and having an aperture formed therein; an emitter 133 having a lower portion located in the aperture and confronting the undoped epitaxial layer 120; a conductor ring 129 formed in the doped epitaxial extrinsic base layer 123 surrounding the lower portion of the emitter 133; an emitter trench etch landing pad remnant 191a located on the doped epitaxial extrinsic base layer 123 immediately surrounding the aperture; a nitride spacer 191b located on top of the landing pad remnant 191a.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blouse et al. in view of Ryum et al..

Blouse et al., figs. 1A-1M and related text on col. 2-6, as explained above, discloses substantially the claimed bipolar transistor except the conductor ring comprises a silicidated region.

Ryum et al., in a related bipolar transistor as shown in fig. 5e, 6 and text on col. 10, first paragraph, teaches the formation of silicide layer 129 on the doped extrinsic base layer 123.


It would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed silicide layer over the extrinsic base layer as taught by Ryum et al. in Blouse et al. bipolar transistor structure for improving in base ohmic contact.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is 571-272-1694. The examiner can normally be reached on 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Tuan H. Nguyen  
Primary Examiner  
Art Unit 2813

TN